Hydrologic Model Manager

Short Name	ISBA-MODCOU Coupled Model
Long Name	
Description	
Model Type	Physically based distributed model
Model Objectives	To couple atmospheric and hydrologic processes to simulate the entire continental water cycle
Agency _Office	Ecole des Mines de Paris/CIG, UMR CNRS Sisyphe, Fontainbleau, France
Tech Contact	Dr. E. Ledoux
Model Structure	The MODCOU model is comprised of five distict but interconnected functions for simulation of different components of the water cycle, icluding the production function that separates precipitation into infiltration, runoff, evapotranspiration, and soil moisture storage; surface transfer function, the transfer function through unsaturated zone, groundwater function and river/aquifer exchange function. The ISBA land-surface scheme simulates land surface processes.
Interception	
Groundwater	
Snowmelt	
Precipitation	
Evapo-transpiration	
Infiltration	
Model Paramters	The basin geometry and surface routing network parameters are derived from digital elevation models. Transmissivity and storage parameters are calibrated using piezometric and hydrologic data.Surface parameters are derived from soil texture and vegetation type.
Spatial Scale	I km
Temporal Scale	Monthly to yearly
Input Requirements	Atmospheric, and land surface data
Computer Requirements	Large computer
Model Output	Discharge hydrograph, surface fluxes, soil moisture, and snow depth or water equivalent
Parameter Estimatn Model Calibrtn	Some by calibration using an optimization routine
Model Testing Verification	Tested on French basins
Model Sensitivity	Nor reported
Model Reliabiity	Nor reported
Model Application	Adour and Rhone basins in France
Documentation	Not available in public domain but can be obtained from Dr. Ledoux
Other Comments	The model seems to be a promising tool to couple land surface processes and atmospheric processes. References:

Ledoux, E., Girard< g., de Marsily, G. and Deschenes, J., 1989. Spatially distributed modeling: Conceptual approach, coupling surface water and ground water. In Unsaturated flow Hydrologic Modeling –Theory and Practice, edited by H. J. Morel-Seytoux, NATO -ASI Series, Vol. 27, pp. 435-454, Kluwer Academic Publishers, Boston.

Noilhan, J. and Mahtouf, J.-F., 1996. The ISBA land surface parameterization scheme. Global Planet. Change, Vol. 13, pp. 145-159.

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Developer	
Technical Contact	
Contact Organization	